

POSITION DESCRIPTION

PD Tracking Number WW30050
Series, Title and Grade 0802 Engineering Technician (Mechanical) GS-12
Department National Capital Region (NCR)

Introduction Statement

Works in Engineering and Maintenance Staff of GSA NCR Heating Operation and Transmission District (HOTD), which operates and performs maintenance of HOTD heating and refrigeration plants and distribution systems. HOTD's district heating system is the Federal Government's largest heating system serving approximately one hundred Federal buildings, including the White House and Smithsonian Museum Complex. Efficient, reliable operation of HOTD is mandatory. Its customer buildings depend on continuous reliability of its steam and chilled water generating plants and distribution system. The plants consume over twenty million dollars in fuel each year, and fuel is ever subject to increasing price and scarcity. The mechanical engineering technician responsibilities relate to operation, maintenance, and repair of industrial multi-fuel high-pressure steam boiler, refrigeration plants and associated distribution systems including miles of tunnels and buried piping systems. Incumbent participates in organizing, developing, and implementing programs for reliable efficient operation of facility and distribution system equipment, with frequent application of resourceful problem solving. Complexities encountered may lack available adequate corrective procedures. Must exercise mature judgment, improve techniques and use related data to accomplish goals in such cases. Receives assignments and guidance from supervisor. Must have self-starting ability where relatively little guidance is available.

NCC Designation: Non-Sensitive, Low Risk, NACI, SF-85 (12/06/13)

Cyber Statement - This position is designated with Cybersecurity Data Element Codes 000,000,000 based on requirements in the National Initiative for Cybersecurity Education (NICE) Cybersecurity Workforce Framework, 11/2/16.

FLSA DETERMINATION: The NCC has determined this does not meet any exemption criteria of the Fair Labor Standards Act (FLSA). FLSA: Non-Exempt

Major Duties

The incumbent serves as senior mechanical engineering technician in the engineering/maintenance staff responsible for providing technical and management support to the operation of the facilities and the distribution systems under the Heating Operation and Transmission District in the program areas of contract administration, project management, systems operation and oversight, project negotiations, occupational safety and health, asbestos and PCB abatement and fire safety; quality assurance and inspection programs, preventive maintenance, predictive maintenance; district-wide training program for craft personnel, updating of plant operations manuals, and updating of mechanical/electrical schematics and drawings for various plant systems using CAD/CAM system; provides technical support toward facilities management for the facilities and distribution system. In addition to specified duties may be required to perform other duties as assigned related to overall HOTD function to include initiation of critical and emergency repairs and operations.

Performs QA (quality assurance) inspection of maintenance work, including PM (preventative maintenance) work, including maintenance work performed by contractor(s), as scheduled or otherwise assigned by supervisor. Inspects maintenance work by observation of actual performance of work in progress, by non-destructive examination of completed work, or, where deemed necessary, by disassembly of selected items of completed work. As scheduled or otherwise assigned by supervisor in order to provide quality assurance for similar maintenance work performed on large numbers of similar items, develops and carries out, with supervisor approval and review, random sampling of items to be inspected adequate to achieve QA of appropriate confidence level. Records findings of inspection of each item (or sample of items) of maintenance work inspected using GSA Form 3423, documenting whether maintenance for each item (or sample) inspected is acceptable or unacceptable, and clearly and succinctly documenting specific deficiencies noted in performance of the maintenance work, as well as any exceptional conditions noted pertinent to the performance deficiencies noted. As directed by

supervisor, records inspection findings also in computerized maintenance management database system. Re-inspects to verify completion and acceptability of remedial maintenance work performed on items (or samples of items) of maintenance work that were judged unacceptable upon prior inspection.

Develops and evaluates repair, alteration and replacement project concepts, designs, costs, benefits, and priorities. Performs long-range engineering planning studies and recommends optimized benefit to cost actions for these facilities. Makes detailed sketches and working drawings of improvement projects to be accomplished either by contract or by in-house forces. Prepares statements of work for the Contract Specialist's use when detailed engineering specifications are required. Updates and revises various mechanical, electrical, controls and piping schematics and drawings as systems are renewed or modified, including by utilizing the CAD/CAM system. Maintains drawings library. Prepares specifications, drawings and cost estimates. Reviews contractor proposals and participates in contract negotiations.

Provides assistance to the HOTD procurement team on contract administration including inspections of work performed. Assists in resolving contract disputes and provide technical determinations to support the Government's position for disputes. Performs contract modifications development and administration tasks in a thorough, accurate and timely manner, meeting stated needs and objectives.

Participates in overall steam distribution system daily and special operations, including start-up and shut-down of the total system or portions thereof. Participates in start-up and tests for new systems and equipment to insure manufacturer recommendations are followed. Monitors familiarity of system operators with systems and equipment. Reads industry literature to stay abreast of state-of-the-art methods. Participates in evaluation of energy conservation techniques and equipment for HOTD application and in the analyses of load correlations and weather parameters.

Coordinates the occupational health program including the implementation of enhancements, and the correction of deficiencies. Performs onsite occupational safety and health inspections in HOTD facilities.

Participates in the quality assurance program for the steam distribution system and equipment and prepares quantitative and qualitative reports on the findings. Recommends changes to the field maintenance and operational procedures.

Conducts the predictive maintenance testing program for the facilities and distribution system. Responsible for conducting scheduled and random checks on equipment to assure the reliability of the steam and chilled water delivery. Predictive maintenance includes various tests, such as, vibration monitoring the analysis of rotating equipment, borescope analysis with video recording, infrared thermography, lubrication oil analysis, ultrasonic thickness testing and leak diagnostic inspections. Maintains baseline records of equipment test results, prepares reports of test results and notifies personnel of test results and recommended repairs.

Performs equipment and system analyses to improve facilities and distribution system operating and maintenance practices and procedures and identifies and develops alternative measures which will enhance the efficiency and cost effectiveness of system operation. Maintains records and data on system-wide performance efficiencies.

Makes frequent inspections of all phases of work, conducts engineering tests, furnishes technical assistance to supervisors and initiates or recommends corrective action or improvements in the operation, maintenance, repair and administration of the facilities and distribution system. Completes start-up and tests for new systems and equipment to insure that correct procedures are used and that all manufacturers recommendations are followed.

Routinely surveys condition of distribution system tunnels, manholes, building stations, piping and equipment, and documents any deficiencies noted in housekeeping or condition of these, including leaks, failures, flooding, disintegration, electrical deficiencies and safety deficiencies. Shuts down or bypasses

distribution system section(s), and secures and monitors same, as needed to make possible the accomplishment of maintenance, repair, or upgrade work, whether routine or emergency, whether by contractor or in-house personnel. Conceptualizes, plans, communicates to customer building managers, carries out, and monitors shut downs.

Prepares reports and technical and cost analyses for equipment and system repairs and for compliance with environmental regulations safety regulations and fuel acceptability.

Makes detailed sketches and working drawings of improvement projects to be accomplished either by contract or by mechanical forces. Prepares statements of work for the Contract Specialist's use when detailed engineering specifications are required.

Updates and revises various mechanical, electrical, controls and piping schematics and drawings as plant systems are renewed or modified utilizing the CAD/CAM system. Maintains HOTD drawings library and the documents library that includes records on major repairs performed on various equipment and systems through contracts and group forces.

Provides direction, evaluation, and coordination on facility related areas such as cleaning and housekeeping, pest control, landscaping, structural repairs, ash and trash removal, painting of equipment and piping, delivery and storage of fuel, and security.

Maintains good customer relations and communications, with customers both external and internal to HOTD. Examples of customers include personnel in other GSA services, Service Centers Teams, GSA Finance and Payroll, personnel in the National Office or other GSA regions, contractors and vendors, private sector individuals, and client agency tenants. Effectively responds to customer inquiries and resolves customer complaints. Creates a relationship with customers that builds trust exhibits a positive, caring, and professional attitude. Communicates with customers regularly, effectively, and proactively to ensure end product/service meets customer's expectation. Collaborates with the customers to understand their requirements, and be easily accessible to the customers. Works to improve customer satisfaction, as measured by national/regional measurement tools.

Primary Factor Level Statements

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| Factor 1 | Knowledge Required by the Position | Factor Level 1-7 | 1250 pts. |
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Practical knowledge of mechanical engineering principles, concepts, and practices with emphasis on thermodynamics and heat transfer, hydraulic systems, pneumatic systems, high-pressure steam operations and associated equipment, industrial equipment, equipment, and compressible and incompressible fluid dynamics in distribution systems.

Knowledge of high pressure steam and distribution system operations, including maintenance and repair and construction procedures.

Knowledge of practices, methods, techniques, and application of safety policies, procedures, and guidelines to work conditions, work practices, and protective equipment used in the facilities.

Knowledge of analysis techniques such as life cycle economics, reliability analyses, and operational contingency analyses.

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| Factor 2 | Supervisory Controls | Factor Level 2-4 | 450 pts. |
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The engineering and maintenance supervisor provides the incumbent with overall objective, and very general guidance on critical issues and policy direction. The incumbent in consultation with his supervisor establishes priorities and sets deadlines for the accomplishment of his tasks. The incumbent determines the approach of the implementation of the task and completes the task with little or no guidance. The incumbent discusses with the supervisor broad technical phases and progress on the task and the

budgetary impact. By the established deadline of the task, the supervisor is provided with a completed and technically correct product. Incumbent's work is reviewed from an overall standpoint of effectiveness in meeting the specified requirements. In the absence of the supervisor, incumbent may act in his/her stead.

Factor 3 Guidelines

Factor Level 3-4

450 pts.

Since GSA policies and procedures are primarily tailored to commercial sector buildings, specialized guidelines and procedures must be developed for the facilities and the distribution systems, which are industrial type facilities. The incumbent must independently develop guidelines and procedures that are tailored to the distribution systems within the general intent of GSA policies and procedure. When required guidelines for the distribution systems are in conflict with GSA policies and procedures, the mechanical engineer researches and analyzes the issue, develops proposed guidelines, and through his supervisor, coordinates the process to effect the implementation of the change.

Factor 4 Complexity

Factor Level 4-4

225 pts.

Responsibilities involve a wide range of critical, mechanical, and electrical systems, the interaction of these systems, and the operational constraints which all must be factored into the development and evaluation of projects for the plants. The incumbent must independently evaluate complex technical issues through obtaining data from professional organizations, other Government agencies, and the manufacturers and users in the private sector. The interaction of mechanical systems also is very complex with the control often being a mixture of pneumatic, electric, electronic, and hydraulic and being provided by different manufacturers. Responsibilities also involve solutions, which are in compliance with occupational safety and health equipment and environmental regulations.

Factor 5 Scope and Effect

Factor Level 5-4

225 pts.

The purpose of this work is to provide administrative, operational and technical support for the facilities and the distribution systems which provide critical heating and cooling services to Government operations in the Washington, DC area. Results of these duties affect the efficient, safe, reliable, and cost effectiveness of providing these services. The technical assistance on the safety program results in reductions in employee lost time and equipment damage and in increased plant reliability. The implementation of duties on projects and long-term engineering planning analyses results in improvements in assuring reliable operation in a cost effective, efficient, safe, and environmentally acceptable manner.

Factor 6 Personal Contacts

Factor Level 6-3

60 pts.

The incumbent contacts managers, supervisors, and engineers in the Public Buildings Service in both the region and Central Office. Private sector personnel and personnel in other Government agencies, utilities, and contractors are contacted on the evaluation of mechanical equipment and systems.

Factor 7 Purpose of Contacts

Factor Level 7-3

120 pts.

The purpose of contacts is to obtain technical data on complex equipment; influence and persuade engineers, managers, and supervisors to adopt major actions and the time phasing and priority of those actions; and through the supervisor to reach a consensus and concurrence on major projects and commitments of funds for these facilities. Contacts are to ensure secure access and activities throughout the system.

Factor 8 Physical Demands

Factor Level 8-2

20 pts.

Recurring evaluations are required at the plant and distribution facilities, which include climbing over, under, and around equipment, walking through tunnel, and using catwalks and ladders. Work is also performed in an office setting.

Factor 9 Work Environment**Factor Level 9-2****20 pts.**

During recurring evaluations in the plant and distribution facilities, there is exposure to risks and discomforts such as high temperatures and humidity (particularly in the steam tunnels), noise in the plants, asbestos, chemicals, fly ash, and fuels. In these facilities safety equipment such as hard hats, safety shoes, and eye protection are worn. Specialized equipment for asbestos may also be required. Work is also performed in an office setting.

Factor Points Total 2820**Position Classification Standards Used**

Standard Used-

Technical Work in the Engineering and Architecture Group, 0800 May 2007

Total points-2820 GS-12 point range (2755-3150)